

IV. *Some Observations of the Mercury's Altitude, with the Changes of the Weather at Emüy in China. Lat. 24°. 20'. N°.*

By Mr. James Cunningham.

October 1698.

From the 1st. to the 8th. fair and clear Weather, the Mercury's Altitude, 29¹⁴/₃₀ Digit.

From the 8th. to the 11th. close and cloudy Weather, the Mercury falling to 29²³/₃₀ Digit.

11th. Close Weather, somewhat cloudy.

12th. Close Weather blowing fresh at *North-east*.

13th. and 14th. close and cloudy Weather, with much Rain, and fresh Winds from *North-east* to *North-west*.

The Tide, (which commonly flows 3 Fathoms) did flow above half a Foot higher 3 Days after the full Moon, then it did on the full Moon at the Equinox.

15th. Fair and clear Weather, with small Gales at *North-east*.

From the 15th. to the 24th. fine moderate fair Weather, with small Gales about *North-east*, and to the 31th. Winds and Weather variable.

November the 1st. to the 15th. variable, close and cloudy Weather, with some Rain, and variable Gales round the Compass.

15th. Fair and clear Weather, with small Gales at *North-east*, in the Morning the Mercury's Altitude 29¹⁵/₃₀ Digit, at Noon 29²⁵/₃₀; and at ten of the Night, being cold, rising to 29¹⁶/₃₀.

16th.

7. 16th. At Sun-rising very cold, the Mercury's Altitude $29\frac{18}{30}$. At Noon fair and pleasant Weather, the Mercury falling to $29\frac{17}{30}$. At Night cold, rising to $29\frac{18}{30}$. The Wind at *North-east*.

8. 17th. This Morning cold, the Mercury at $29\frac{18}{30}$, fair and clear Weather all Day, and at Night blowing somewhat fresh at *North-east*, the Mercury at $29\frac{17}{30}$.

9. 18th. This Morning cold, the Mercury at $29\frac{17}{30}$. All Day fair and pleasant Weather, the Mercury falling to $29\frac{16}{30}$, and by Noon to $29\frac{15}{30}$. The Weather fair, somewhat close and cloudy; the Afternoon Sun-shining and Warm, and at Night temperate, the Mercury continuing at $29\frac{15}{30}$. Small Winds at *North-east*, and almost Calm.

10. 20th. A pleasant Sun shining Morning, the Mercury at $29\frac{15}{30}$. At Noon overcast, and cloudy, with little Wind at *North-east*, the Mercury falling to $29\frac{10}{30}$. In the Afternoon some drops of Rain, with close Weather, and at Night the Mercury continuing at $29\frac{10}{30}$, with small Westerly Winds. Some Rain in the Night.

11. 21st. Close and cloudy Weather, with small Gales at *North-east*, the Mercury at $29\frac{10}{30}$ in the Morning, and continued so all day, with some drops of Rain in the Afternoon, the Gale freshning, and a shower of Rain at 8 of the Night, the Mercury rising to $29\frac{15}{30}$.

12. 22d. Gray and cloudy Weather all Day, with fresh Gales between *East* and *North-east*. the Mercury at $29\frac{17}{30}$; and at Night rising to $29\frac{17}{30}$. Fair Weather, somewhat Cloudy.

13. 23d. A very cold Morning, fair and clear, with fresh Gales from *North-east* to *North*, the Mercury at 30 Digit. Fair and clear all Day, with a moderate Gale about *North-east*: Clear and very cold all Night, the Mercury continuing at 30 Digit.

14. 24th.

4. 24th. A fair, clear, and cold Morning, the Wind at *North-east*; a moderate Gale, the Mercury continuing at 30 Digit. A clear Sun-shining Day, cold and clear all Night, the Mercury as before.

8. 25th. A sharp cold Morning, fair and clear, with a moderate Gale at *North-west*, the Mercury fallen to $29\frac{18}{30}$. All Day fair and pleasant, very warm, and no Wind, the Mercury falling at Noon to $29\frac{15}{30}$, and at Night being somewhat Hazy and Calm withal, to $29\frac{14}{30}$.

h. 26th. temperate Weather all Night, and this Morning somewhat close and hazy, and no Wind, the Mercury at $29\frac{14}{30}$, and towards Noon growing clearer and warmer, rising to $29\frac{16}{30}$. Small Brizes at *North-east*, at Night falling to $29\frac{14}{30}$, temperate Weather.

6. 27th. Fine pleasant Weather all Day, with small variable Brizes from the *North* to *west*, and about to *South*, the Mercury in the Morning at $29\frac{14}{30}$, and at Noon falling to $29\frac{13}{30}$, and at Night rising to $29\frac{14}{30}$. Fair Weather and Calm.

2. 28th. Fine moderate Weather, with a Gale at *North-east*, the Mercury at $29\frac{14}{30}$. In the Afternoon the Gale freshn'd, the Weather somewhat Cloudy, and at Night the Mercury was at $29\frac{16}{30}$. blowing fresh.

8. 29th. Fair and clear Weather, somewhat cold this Morning, with a fresh Gale at *North-east*; the Mercury at $29\frac{18}{30}$. Fine pleasant Weather all Day, with small Gales at *North-east*, at Noon the Mercury falling to $29\frac{15}{30}$, and at Night being clear and somewhat cold, rising to $29\frac{17}{30}$.

7. 30th. Fair and pleasant Weather, with small Gales at *N. E.* the Mercury at $29\frac{17}{30}$. At Noon a fresh Gale, the Mercury falling to $29\frac{14}{30}$. At Night temperate Weather, and little Wind, the Mercury rising to $29\frac{16}{30}$.

D E C E M B E R.

4. 1st. Fine temperate Weather, with small Gales at *North-east*, the Mercury at $29\frac{16}{10}$ in the Morning. Fair Weather all Day, and small Brizes at *North-east*, the Mercury at Noon falling to $29\frac{14}{10}$, and in the Evening to $29\frac{13}{10}$, and at Night rising to $29\frac{14}{10}$, being fine clear Weather.

5. 2^d. Fair and temperate Weather, somewhat Cloudy, and overcast with small Gales at *North-east*, the Mercury at $29\frac{14}{10}$, and at Night rising to $29\frac{15}{10}$.

6. 3^d. A clear and cold Morning, with a fine sharp Gale at *North*, and by *East*, the Mercury at $29\frac{17}{10}$. A cold Air all Day, the Mercury at Noon falling to $29\frac{15}{10}$, and at Night the Gale freshning made it colder, the Mercury rising to $29\frac{18}{10}$.

7. 4th. A sharp Morning with a fresh Gale at *North* and by *East*, the Mercury at $29\frac{18}{10}$. Fair and clear all Day, with a small *Northerly* Gale, the Mercury by Noon falling to $29\frac{15}{10}$. A serene temperate Night, and almost Calm, the Mercury as before.

8. 5th. A fine clear Morning, with a moderate Gale at *South-west*, somewhat cold, the Mercury at $29\frac{15}{10}$. At Noon a small Brize at *East* by *South*, pleasant Weather, the Mercury at $29\frac{15}{10}$. At Night a small Gale at *South* by *East*, fair and temperate Weather, somewhat hazy, the Mercury at $29\frac{13}{10}$.

9. 6th. This Morning somewhat close and Cloudy, with a few drops of Rain, the Weather temperate, with small *Southerly* Brizes, the Mercury at $29\frac{13}{10}$. The Afternoon Calm, and somewhat Hazy, the Mercury falling to $29\frac{10}{10}$. At Night overcast and Cloudy, with some Rain, blowing fresh at *North*, the Mercury rising to $29\frac{14}{10}$.

♀. 7th. A gray Morning, clearing up with a fresh Gale at *North-east*, the Mercury at $29\frac{17}{30}$. In the Afternoon the Horizon a little Hazy, the Mercury falling to $29\frac{15}{30}$. At Night clearer, with a fresher Gale, the Mercury rising to $29\frac{18}{30}$. A very cold Night.

♂. 8th. A sharp clear Morning, with a fine Gale at *North-east*, the Mercury at 30 Digit. At Noon falling to $29\frac{18}{30}$, a fine Sun-shining Day. At Night cold and clear, a small Gale at *North-east*, the Mercury rising to 30 Digit.

♀. 9th. This Morning as the last, all Day and Night the same, and the Mercury also.

♂. 10th. A cold Morning, somewhat Foggy, with a fine Gale at *North-east*, the Mercury at 30 Digit, all Day Fair, Clear and Sun shining. At Night cold, the Mercury at $29\frac{19}{30}$.

♂. 11th. A cold Morning, with a moderate Gale at *North-west*, the Mercury at $29\frac{19}{30}$. All Day fair and clear, the Mercury falling to $29\frac{16}{30}$. At Night a fresh Gale at *North-east*, the Mercury at $29\frac{19}{30}$.

♂. 12th. A gray cold Morning, somewhat Cloudy, with a hazy Horizon, a fresh Gale at *North-east*, and the Mercury at $29\frac{19}{30}$, towards Noon falling to $29\frac{17}{30}$, with little Wind, and fair Weather; at Night calm and somewhat cold, the Mercury rising to $29\frac{18}{30}$.

♂. 13th. A fine pleasant Morning, with a small Brize at *North-west*, the Mercury at $29\frac{18}{30}$. At Noon a small Gale at *North-east*, and in the Afternoon Calm, the Mercury falling to $29\frac{14}{30}$. All day Serene, at Night Calm, with a clear Sky, somewhat cold, the Mercury rising to $29\frac{15}{30}$.

♀. 14th. A fine temperate Morning, with some small Rain like Dew, and a moderate Gale at *South west*, the Mercury at $29\frac{15}{30}$. The Afternoon a little overcast, and the Horizon somewhat Hazy, a small Gale at *South-east*, the Mercury falling to $29\frac{15}{30}$. At Night Temperate and Calm, the Mercury rising to $29\frac{14}{30}$.

15th. A fine temperate calm Morning, the Mercury at $29\frac{15}{32}$. At Noon fair, pleasant, calm Weather, the Mercury fallen to $29\frac{12}{32}$. All the Afternoon, and at Night a fresh Gale at *North-east* fair Weather, the Mercury rising to $29\frac{15}{32}$.

16th. A gray cloudy Morning, somewhat Hazy, with a fresh Gale at *North-east*, the Mercury at $29\frac{17}{32}$. At Noon fair and clear, the Gale moderate, and the Mercury falling almost to $29\frac{14}{32}$. The Afternoon somewhat Cloudy with a fine Gale at North East; At Night a little Wind, serene and sharp, the Mercury rising to $29\frac{18}{32}$.

17th. A Gray Morning somewhat cold with a fine Gale at North East, the Mercury at $29\frac{17}{32}$, and at Noon falling to $29\frac{15}{32}$. At Night little Wind, the Mercury rising to $29\frac{16}{32}$.

18th. A fair temperate calm Morning somewhat foggy, the Mercury at $29\frac{17}{32}$. All Day fair Weather somewhat Cloudy with small Winds at North East, the Mercury falling to $29\frac{15}{32}$. At Night blowing fresh, the Mercury rising to $29\frac{18}{32}$.

19th. A Gray cloudy Morning with a fresh Gale at North East, the Mercury at $29\frac{18}{32}$. Close Thick Weather, with continual Rain all Day and Night, and a moderate Gale at North East; at Night the Mercury rising to $29\frac{19}{32}$.

20th. Close thick Rainy Weather, the Morning with a moderate Gale at North East, the Mercury falling below $29\frac{18}{32}$. And by Noon to $29\frac{16}{32}$, continual thick rainy Weather all Day and Night, the Mercury at $29\frac{16}{32}$, and the Gale as before.

21st. A gray cloudy Morning but fair and beginning to clear up and Calm withal, the Mercury at $29\frac{15}{32}$. At Noon fair Weather, and somewhat clear, with a small Gale at *South-west*, the Mercury falling to $29\frac{13}{32}$. At Night calm and somewhat cloudy, the Mercury at $29\frac{14}{32}$.

4. 22d. A gray cloudy Morning continuing so all Day with a small Gale at *North-East*, the Mercury at $29^{\frac{11}{32}}$, at Night rising to $29^{\frac{15}{32}}$.

8. 23d. A gray cloudy Morning, continuing so all Day, with small Gales at *North-East*, the Mercury at $29^{\frac{11}{32}}$, at Night more serene the Mercury rising to $29^{\frac{15}{32}}$.

h. 24th. A gray Morning and calm Weather, the Mercury at $29^{\frac{15}{32}}$, close and cloudy Weather all Day and no Wind, the Mercury falling to $29^{\frac{11}{32}}$. At Night rising almost to $29^{\frac{15}{32}}$.

o. 25th. A gray cloudy Morning, (some Rain before Day light) with small *Southerly* Brizes, the Mercury at $29^{\frac{11}{32}}$. Towards Sun-shining and pleasant, little Wind variable, the Mercury falling to $29^{\frac{12}{32}}$. The Afternoon and at Night overcast and cloudy, the Wind at *South by East*, and the Mercury rising to $29^{\frac{13}{32}}$.

δ. 27th. A fine pleasant Morning, with a hazy Horizon, and altogether calm, the Mercury at $29^{\frac{13}{32}}$, and by Noon at $29^{\frac{11}{32}}$. All Day pleasant Weather, and at Night small Gales at *North-East* the Mercury rising to $29^{\frac{12}{32}}$.

7. 28th. A fine pleasant Morning with a small Brize at East North East, the Horizon somewhat hazy and the Mercury at $29^{\frac{11}{32}}$. at Noon falling to $29^{\frac{10}{32}}$. All Day fair and pleasant Weather with the fore-said Brize. At Night calm, the Mercury falling almost to 29° .

σ. 29th. A gray Morning, with a close Horizon, and a small Brize about East-North-East, the Mercury at $29^{\frac{8}{32}}$. Calm all the Forenoon, in the Afternoon pleasant Weather, with a small Gale of South-East, the Mercury at $29^{\frac{6}{32}}$. At Night calm, the Mercury at $29^{\frac{7}{32}}$.

υ. 30th. A gray cloudy Morning, and close Weather, with a fresh Gale at South-East, the Mercury at $29^{\frac{11}{32}}$.

All Day cloudy and dark, the Gale freshning and veering to *East-North-East*, the Mercury rising to $29\frac{12}{16}$.

1. 31st. Gray cloudy Weather all Day, with a fresh Gale at *North-East*; in the Evening some Rain blowing fresh all Night.

JANUARY.

1. 1st. Variable Weather with small Gales at *North-East*.

2. 2d. Rainy thick Weather all Day and Night with little Wind at *North-East*.

3. 3d. Continual thick rainy Weather all Day and Night, the Wind at *North-East*.

4. 4th. Fair Weather somewhat close, and calm all Day and Night.

5. 5th. Close Weather with some Rain and Calm this Forenoon; and in the Afternoon a small Brize at *west-North-west*. Departed from Emuÿ.

V. *Part of a Letter from Dr. David Gregory, to Dr. Sloane, dated Oxford, October 12. 1699. containing his observations of the Eclipse of the Sun on the 13th of September last.*

I Send you a Scheme of the Phases of the late Eclipse of the Sun, (*see the Table*) as I observ'd them. I did not see the beginning of it: But the end happened here, precisely Twenty four Minutes and Nine seconds after Ten a Clock in the Morning, apparent Time, and all the Times marked in the Figure are such: The greatest Observation, which was Ten Digits and a Quarter, was about Seven Minutes after